County of Los Angeles
**CHIEF EXECUTIVE OFFICE**
713 KENNETH HAHN HALL OF ADMINISTRATION
LOS ANGELES, CALIFORNIA 90012
(213) 974-1101
http://ceo.lacounty.gov

WILLIAM T FUJIOKA
Chief Executive Officer



March 11, 2008

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

**DEPARTMENT OF PUBLIC WORKS: SAN GABRIEL VALLEY TRAFFIC SIGNAL SYNCHRONIZATION AND BUS SPEED IMPROVEMENT PROJECT AWARD OF SUPPLEMENTAL CONSULTANT SERVICES AGREEMENT NO. 1 (SUPERVISORIAL DISTRICTS 1 AND 5) (3 VOTES)**

**CIO RECOMMENDATION: APPROVE ( X ) APPROVE WITH MODIFICATION ( ) DISAPPROVE ( )**

**IT IS RECOMMENDED THAT YOUR BOARD:**

Award and authorize the Acting Director of Public Works or his designee to execute Supplemental Consultant Services Agreement No. 1 to Contract PW12716 with TransCore Intelligent Transportation Systems, Inc., to prepare a detailed design and implement an Advanced Transportation Management System for the San Gabriel Valley. The Supplemental Agreement will be for a not-to-exceed fee of $1,341,500 to be financed with Los Angeles County Metropolitan Transportation Authority Grant Funds and matching County Funds.

**PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION**

The purpose of this action is to obtain consultant services for the design and implementation of an Advanced Traffic Management Systems (ATMS) for the San Gabriel Valley.

## Implementation of Strategic Plan Goals

The Countywide Strategic Plan Goal directs that we provide Service Excellence (Goal 1), Organizational Effectiveness (Goal 3), and Community Services (Goal 6). The project will provide improved infrastructure and will enhance the quality of life in the affected communities. By securing staffing resources to complete the work, it ensures an efficient, effective, and goal-oriented project delivery system.

## FISCAL IMPACT/FINANCING

There will be no impact to the County General Fund. The recommended work being added to the contract under this Supplemental Agreement is for a not-to-exceed fee of $1,341,500. The estimated cost to complete this work is $1,219,475, plus $122,025 for unforeseen additional work, which may arise during the progress of the work.

The Los Angeles County Metropolitan Transportation Authority will reimburse approximately 84 percent of the cost of Contract PW12716 from the 1995 Call for Projects Proposition C Discretionary Grant Funds for the West San Gabriel Valley Traffic Signal Forum. The remaining 16 percent will be funded by the County's Proposition C Local Return revenue. Funding for this agreement is included in the Fiscal Year 2007-08 Proposition C Local Return Fund Budget. The recommended Supplemental Agreement increases the total amount of Contract PW12716 from $1,124,200 to $2,465,700.

## FACTS AND PROVISIONS/LEGAL REQUIREMENTS

The term of this contract will commence upon issuance of Notice to Proceed by the Director or his designee and shall terminate on the date the work is accepted by the County.

The contract contains the County's standard provisions regarding contractor obligations and is in compliance with all Board, Chief Executive Office (CEO), and County Counsel requirements.

The contract is not subject to the County's Living Wage Ordinance (Los Angeles County Code Chapter 2.201) because the services are of a technical nature.

A standard agreement previously approved by County Counsel will be used. The CEO's Risk Management Office has approved the insurance coverage, indemnification, and liability provisions included in the contract.

In compliance with the Chief Information Officer's guidelines, the Department of Public Works will utilize the Information Technology Tracking System to monitor the project status and contractor's performance.

The execution of this agreement will also include cost of living allowance provisions for annual rate adjustments in accordance with County standards.

## ENVIRONMENTAL DOCUMENTATION

In accordance with Section 15378(b)(4) of the State of California Environmental Quality Act (CEQA) Guidelines, approval of the recommended action does not constitute a project and, therefore, is not subject to the requirements of CEQA. Appropriate environmental documents will be prepared when projects developed under this agreement are brought to your Board.

## CONTRACTING PROCESS

On September 2, 2003, your Board authorized us to execute an agreement with TransCore Intelligent Transportation System, Inc. (TransCore), for a not-to-exceed fee of $1,124,200, to prepare a conceptual design for an ATMS for the San Gabriel Valley area. The contract included a Cost of Living Adjustment provision in accordance with your January 29, 2003, Board policy.

The scope of services proposed in the original Requests for Proposal for this project indicated the full implementation of the project would be accomplished in phases. Phase 1 consisted of the conceptual design, while subsequent phases included detailed design, system deployment and integration, inspection, operational testing, documentation, training, and system maintenance. Consultant selection was based on qualifications for completing all phases of the project and the proposer is required to provide an approach for each phase along with a preliminary estimate, budget, and labor requirements associated with each phase.

TransCore has completed the conceptual design of the project. Based on their performance during Phase 1, we determined that TransCore is the most qualified firm to provide the required detail design and implementation services. TransCore is familiar with the project area and with the implementation strategies that have been set forth within the conceptual design report. The cities involved with this project are also familiar with the TransCore consulting team, which will facilitate stakeholder approvals.

TransCore has agreed to provide detailed design and implementation services for the ATMS project for a not-to-exceed fee of $1,341,500. The negotiated fees have been reviewed by the Department of Public Works and are considered reasonable for the services provided.

In addition to this agreement, TransCore is currently under contract with the Department of Public Works (Agreement 001571) for $5,088,410, to complete the enhancement and continued deployment of the County's Information Exchange Network (IEN) software. The IEN is an advanced traffic management system and multijurisdictional network capable of sharing information and control of various traffic control systems and field devices. This Supplement Agreement will provide assistance to the San Gabriel Valley cities with the deployment of IEN in each jurisdiction and integration with the IEN at the County Traffic Management Center at the Department of Public Works. This portion of the work is not in conflict with Agreement 001571.

The scope of this Supplemental Agreement also includes working with the San Gabriel Valley cities to install individual traffic control systems. TransCore is a vendor of these traffic control systems. To mitigate any potential unfair business advantage for TransCore all procurement support functions related to traffic control systems will be completed outside of this Supplemental Agreement by TransCore's subconsultant under the direction and supervision of the Department of Public Works.

**IMPACT ON CURRENT SERVICES (OR PROJECTS)**

There is no impact on other current County services or projects.

**CONCLUSION**

Please return one adopted copy of this letter to the Department of Public Works, Traffic and Lighting Division.

Respectfully submitted,

WILLIAM T FUJIOKA
Chief Executive Officer

Reviewed by:

JON W. FULLINWIDER
Chief Information Officer

WTF:DLW
WJW:pc

Attachment

c: County Counsel
Department of Public Social Services (GAIN and GROW Program)
Department of Public Works (Architectural Engineering, Chief Information Office, Programs Development)

# CIO ANALYSIS

## SAN GABRIEL VALLEY TRAFFIC SIGNAL SYNCHRONIZATION AND BUS SPEED IMPROVEMENT PROJECT

**CIO RECOMMENDATION:** ☒ APPROVE ☐ APPROVE WITH MODIFICATION ☐ DISAPPROVE

**Contract Type:**
☐ New Contract ☒ Contract Amendment ☐ Contract Extension
☐ Sole Source Contract

**New/Revised Contract Term:** Base Term: 3 Years # of Option Yrs N/A

**Contract Components:**
☒ Software ☒ Hardware ☐ Telecommunications
☒ Professional Services

**Project Executive Sponsor:** Jane White, Senior Civil Engineer, DPW

**Budget Information :**

| | |
|---|---|
| Phase I Contract | $1,124,200 |
| Requested Contract Amount | $1,341,500 |
| Aggregate Contract Amount | $2,465,700 |

**Project Background:**

| Yes | No | Question |
|---|---|---|
| ☐ | ☒ | Is this project legislatively mandated? |
| ☒ | ☐ | Is this project subvented? If yes, what percentage is offset? 87% ($1,169,788). |

**Strategic Alignment:**

| Yes | No | Question |
|---|---|---|
| ☒ | ☐ | Is this project in alignment with the County of Los Angeles Strategic Plan? |
| ☒ | ☐ | Is this project consistent with the currently approved Department Business Automation Plan? |
| ☒ | ☐ | Does the project's technology solution comply with County of Los Angeles IT Directions Document? |
| ☒ | ☐ | Does the project technology solution comply with preferred County of Los Angeles IT Standards? |

**Project/Contract Description:**

This Supplemental Agreement is Phase 2 of the San Gabriel Valley Traffic Signal Synchronization and Bus Speed Improvement Project (Project). The scope of this Phase 2 project incorporates all activities necessary to complete the detailed design, procurement and implementation of an Automated Traffic Management System (ATMS) within the San Gabriel Valley area. When complete, this project will include design and/or implementation of Center-to-Center communications, Local City Control Sites, Advanced Traffic Management Systems, and installation of Information Exchange Network (IEN) equipment, as well as Closed Circuit Television (CCTV) cameras and systems and Field-to-Center communications. Because the six cities within the San Gabriel Valley Traffic Forum have differing traffic management requirements, the work performed for each city may be limited to design and consulting services, or may include actual implementation of the services referenced above. This Supplement is budgeted at $1,341,500, including a contingency budget of $122,025 (10%). Including the original Agreement and this Supplemental Agreement, the total project budget is $2,465,700.

**Background:**

Phase I of this project, approved via a Board Agreement in 2003, consisted of the conceptual design of the various traffic management components throughout the various cities in the San Gabriel Valley Traffic Forum (SGVTF). In 2003, the Department of Public Works (Department) anticipated completing the entire project in multiple phases. Instead, the Department has determined that all remaining activities can be combined and completed in a single phase, Phase 2, which is represented in this Supplemental Agreement.

**Project Justification/Benefits:**

This project supports the County's goal of enhancing traffic flow on major streets and highways via coordination and synchronization of traffic signals. When completed, the ATMS will provide communications between the San Gabriel Valley cities, unincorporated areas, and the County's centralized Traffic Management Center (TMC).

**Project Metrics:**

The Statement of Work (SOW) has clearly defined project deliverables. Successful completion and acceptance of the incremental components of the deliverables will serve as the project management metrics. With regard to the service delivery metrics, the degree of project success will be measured by the number of cities within the San Gabriel Valley Traffic Forum that successfully implement an ATMS in their city, including two-way communication of traffic information with all other participating agencies.

**Impact If Proposal Is Not Approved:**

If this Supplemental Agreement is not approved, it will impede progress on the County's efforts to create an effective regional traffic management system to improve the flow of traffic on the streets and highways in the San Gabriel Valley.

**Alternatives Considered:**

TransCore, the vendor for the original Agreement and Scope of Work, was obtained via a competitive bid process. TransCore's successful performance in Phase 1 led to the Department's decision to utilize the same vendor for this Phase 2. The Department also considered utilizing its internal resources to perform the professional services portion of this project, but concluded that contracting with TransCore was more cost effective.

**Project Risks:**

Phase 2 includes working with the San Gabriel Valley cities to design, procure and install an ATMS within each city. TransCore is also a vendor of this type of system and services, presenting a potential for an unfair business advantage.

Additionally, beyond this Supplemental Agreement, and under a separate Board approved Agreement, TransCore is providing similar traffic management consulting, design and deployment services for the County's Information Exchange Network (IEN) software. The IEN incorporates multi-jurisdictional traffic management tools and will provide a communication interface to other ATMS' being implemented in the San Gabriel Valley and other areas of the County. These circumstances could also present a potential for an unfair business advantage.

**Risk Mitigation Measures:**

The Department has consulted with County Counsel to assist in identifying and mitigating the potential risks associated with these conditions. The Department has incorporated into this Supplemental Agreement the recommendations made by Counsel.

**Financial Analysis:**

Including the original Agreement sum and this new Supplemental Agreement, the total Agreement budget is $2,465,700.

**CIO Concerns:**

The original Agreement (2003) projected completion of Phase 1 within a 14-month period. Upon review of the planned Phase 2 Project, the CIO was initially concerned that a portion of the conceptual design work performed in Phase 1 could be outdated given the passage of time and rapidly changing technologies.

Via discussions with the Department's IT management, our Office has confirmed that the Department has performed a comprehensive review of the technology-related components completed in Phase 1, and concluded those components are still viable for the Phase 2 Project.

The Department has been very diligent in conducting the Phase 1 review, and in their work with County Counsel to mitigate potential 'unfair advantage' risks. My Office, therefore, has no concerns regarding approval of this Supplemental Agreement.

**CIO Recommendations:**

Approve the request for a Phase 2 Supplemental Agreement.

**CIO APPROVAL**

Date Received: 1/17/08

Prepared by:

Date: 1/31/08

Approved:

Date: 2/4/2008

P:\Drafts\CIO Board Analysis dpw sgv.doc

SUPPLEMENTAL AGREEMENT

Supplemental 1 Contract PW12716

Subject: SAN GABRIEL VALLEY TRAFFIC SIGNAL FORUM ADVANCED TRAFFIC MANAGEMENT SYSTEM IMPROVEMENT PROJECT TRANSCORE ITS, INC.

IT IS MUTUALLY AGREED by and between the parties hereto, COUNTY OF LOS ANGELES (COUNTY) and TRANSCORE, ITS, INC. (TransCore or CONTRACTOR) as follows:

The above-numbered CONTRACT (the original CONTRACT) between COUNTY and TransCore was for Phase 1 of this design project. The CONTRACTOR's scope of work for Phase 1 of the project is found in the original contract at Exhibit A-Scope of Work (Exhibit A). The purpose of this Supplemental Agreement is to add Phase 2 of this design project to the original contract.

The original CONTRACT is hereby amended as set forth herein.

The provisions of said original CONTRACT shall remain in full force and effect except as to the additions and deletions and Supplemental Agreements herein, and the COUNTY shall pay to the consultant the amount of $1,341,500, as set forth in Exhibit 2. The total CONTRACT not to exceed fee is revised from $1,124,200 to $2,465,700.

Attached Exhibit 1, the scope of work for Phase 2, is incorporated herein by reference and is added to Exhibit A of the original CONTRACT.

Attached Exhibit 2, which is the schedule of deliverables and payments for all of the work of Phase 2, which includes the CONTRACTOR's latest applicable hourly rates as 2.1, is incorporated herein by reference and is added to Exhibit B of the original CONTRACT.

The paragraph 5.2, of the original CONTRACT, Invoice Detail, is amended as follows:

> Tasks 1, (Project Management), 2.3 (C2C Communications Support), 2.13 (Level 1 or 2A Agency LCCS Procurement Support), 2.22 (Level 2B Agency Communications PS&E Draft), 2.23 (Level 2B Agency Communications PS&E Final), 3 (ATMS Support), 4 (Deployment of IEN and ATMS Components at Local Agencies), 5 (Oversight of Video Distribution Software, 6 (Construction Inspection Assistance), 7 (As-built Plans), and 8 (Start-up and On-going System Support), from attached Exhibit 2 are added to Paragraph 5.2(C) and 5.2(E).

Paragraph 5.4 of the original CONTRACT, Holdbacks, is amended by adding, as a second paragraph, Holdbacks for the Phase 2 tasks are as specified in Exhibit 2, which has been added to Exhibit B. The cumulative total of holdbacks shall be due and payable to the CONTRACTOR upon successful completion of Task 8 (Start-up and Ongoing System Support) as described in Exhibit 2.

Paragraph 5.8 of the original CONTRACT, Credits to COUNTY, is amended by adding, as deliverable Number 9 near the top of Page 10, Task 2.16 – CCTV Plans, Specifications and Cost Estimate (Final) from Exhibit 2.

Paragraph 9.2.1 of the original CONTRACT is amended by deleting Ms. Inez Yeung as the project manager and adding as project manager in her place Mr. Jonathan Lu and deleting Ms. Yeung's telephone number (626) 300-4734 and adding Mr. Lu's telephone number (626) 300-2029 and deleting Ms. Yeung's e-mail address and adding Mr. Lu's e-mail address, jlu@dpw.lacounty.gov and deleting Ms. Yeung's fax number and adding Mr. Lu's fax number (626) 979-5319.

Prevailing Wage Requirements

Consultant must comply with all applicable prevailing wage requirements. The subject project is a public work as defined in Section 1720 of the California Labor Code.

IN WITNESS WHEREOF, the COUNTY has, by order of its Board of Supervisors, caused these presents to be subscribed by the Director of the Department of Public Works, and the CONTRACTOR has hereunto subscribed its corporate name and affixed its corporate seal by its duly authorized officers this day of , 2008.

COUNTY OF LOS ANGELES

By: _____
Deputy Director
Department of Public Works

APPROVED AS TO FORM:

RAYMOND G. FORTNER, JR.
County Counsel

By: _____
Deputy

TRANSCORE ITS, INC.

By: _____
Senior Vice-President

By: _____
Secretary

Exhibit 1

# SAN GABRIEL VALLEY TRAFFIC FORUM

## Phase II – Scope-of-Work

Prepared for:

**LA County Department of Public Works**

Prepared by:

TRANSCORE

626 Wilshire Blvd.
Suite 818
Los Angeles, California 90017

**August 1st, 2007**

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## INTRODUCTION

Phase II of the San Gabriel Valley Traffic Forum (SGVTF) Project will consist of providing technical support and assistance, developing, as appropriate, Plan, Specification, & Estimate (PS&E) packages and providing construction and installation integration support. These PS&E packages will include the design and/or implementation of: Center-to-Center (C2C) communications, Local City Control Sites (LCCS), Advanced Traffic Management Systems (ATMS), Information Exchange Network (IEN) Site Servers and Workstations, traffic controller and/or cabinet upgrades or replacements, CCTV cameras and systems, and Field-to-Center (F2C) communications.

## 1. PROJECT MANAGEMENT

The Consultant shall provide a Project Manager who will act as the principal consultant contact for the LACO DPW and other involved Agencies. The designated Project Manager will be responsible for the completion of activities associated with the performance of this Project. All required products must be delivered to LACO DPW in a timely manner to the satisfaction of the LACO DPW and the affected Agencies. Additional responsibilities include management of project planning activities and the tracking of costs and resources associated with each aspect of the Project.

### 1.1 PROJECT COORDINATION

The Consultant shall coordinate technical design activities with the involved public and private Agencies for each system component of this Project. This will include, but not be limited to, the following:

- Coordination with SGVTF Agencies throughout the detailed design and implementation phase of this Project
- Coordination with public and private Agencies involved with Local and Regional ITS projects including LACO DPW, Metro, Caltrans, and the Pomona Valley ITS Forum Agencies to avoid duplication of effort in design and construction (Up to 2 Meetings)
- Coordination with other Regional and Sub-Regional projects which may affect this Project such as LACO DPW's Countywide IEN and Traffic Signal Synchronization Project (TSSP), and other relevant San Gabriel Valley projects (Up to 2 Meetings)
- Participation in peer group meetings with consultants in other LACO DPW Traffic Forums to help resolve compatibility issues (Up to 2 Meetings)

All Project Coordination activities will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 1.1 – Meeting Attendance (Up to 6 Meetings)

## 1.2 ATTEND PROJECT MEETINGS/MAKE PROJECT PRESENTATIONS

The Consultant shall attend Project meetings with LACO DPW, Metro, Caltrans, and affected Agencies or organizations as deemed necessary by the LACO DPW to accomplish the tasks and subtasks of this Phase II. These meetings shall include conducting status meetings (as needed) with LACO DPW to review Project progress, discuss any issues that are impeding work on the progress, and review work to be performed in the upcoming months.

As part of these status meetings, Consultant will provide a Project status report that will provide information on the overall Project status, work items completed, and work to be performed during the upcoming months. The Consultant shall prepare meeting minutes for any Project meeting and distribute a copy to meeting participants. Meeting minutes shall summarize each discussion and action item.

The Consultant will also be required to make technical presentations, which includes the use of presentation materials and the distribution of handouts, as needed at LACO DPW staff meetings, and any other meetings as requested by the LACO DPW or the affected Agencies. The Consultant shall obtain prior approval from the LACO DPW on any presentation and handout materials to be distributed at any technical presentation of the Project. The LACO DPW shall be provided with a copy of the distributed materials.

All attendance at Project meetings and/or presentations will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 1.2 – Presentations Materials/Handouts (Up to 2 Presentations)
- Deliverable 1.3 – Project Status-Meeting Minutes (Up to 6 Meetings/Reports)

## 1.3 MAINTAIN PROJECT WEB PAGE

During the course of the Phase II work, the Consultant shall provide the necessary files re: Project deliverables and Project reports to the LACO DPW Project Manager on a regular basis for posting on the SGVTF website (http://ladpw.org/tnl/sgvweb/index.cfm). LACO DPW staff will work with LACO DPW IT staff to move the new and/or changed files to the Internet production server. LACO DPW staff will then verify the new and/or changed pages with LACO DPW IT staff.

It is assumed that there will be one (1) major update to the SGVTF website's Introduction page and three (3) minor updates to the existing pages.

All work associated with maintaining the Project website will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 1.4 – Provide Updated Materials to LACO DPW IT Staff to Update the SGVTF Website

## 1.4 PREPARE PROJECT REPORTS

The Consultant shall prepare and submit written monthly progress reports to the LACO DPW detailing the status of work being performed by the Consultant and sub-consultants. These reports shall be in a form acceptable to Metro as part of its Quarterly Narrative Report. The reports shall include, but not be limited to:

- A narrative of the tasks accomplished in that month
- A review of any incomplete tasks and the reasons why they were not completed
- An outline of the tasks anticipated to be accomplished in the next month
- A summary of problems which occurred during the past month
- Any anticipated problems
- An updated Project schedule
- A list of outstanding issues and deliverables
- The current status of those issues and deliverables
- An invoice as required by this Agreement

The Consultant shall also prepare claims, invoices, billings, and other financial information for review and approval by the LACO DPW, as required by the Agreement. In order to keep the Project on schedule, the Consultant will prepare three (3) iterations of the Project schedule and deliver to LACO DPW at key junctures during the Project.

All Project Management activities will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 1.5 – Monthly Progress Reports
- Deliverable 1.6 – Financial Reports, Billings, & Invoices
- Deliverable 1.7 – Project Schedule (3 iterations, 1 electronic file & 1 hard copy per iteration)

# 2. DETAILED DESIGN

The outputs of the various sub-tasks will allow the SGVTF Agencies to procure the necessary equipment, hardware, software, and implementation services. Under this task, the Consultant shall also provide the SGVTF Agencies with technical advice and support during the actual bid and procurement processes.

## 2.1 CENTER-TO-CENTER (C2C) COMMUNICATIONS

At this time, the Project has currently proposed the installation of one (1) leased circuit (T-1 line) per Agency for a number of purposes including the following (as applicable per Agency):

- Communications between Remote LCCS and LACO TMC for TCS (KITS)
- Communications between Remote LCCS and LACO TMC for IEN
- Communications between Remote LCCS and LACO TMC for Video Images

As directed by LACO DPW, the Consultant will document the C2C communications requirements for each of these connections by Agency location, the address, and the bandwidth requirements for each connection. The Consultant will only be responsible for specifying the bandwidth requirements, the points of origin (e.g., the Agency's City Hall street address), and connection destinations (e.g., LACO TMC network/equipment room). The Consultant will not be required to specify how, for example, the C2C communications from the LACO TMC network/equipment room to an Agency LCCS could possibly be used to support simultaneous KITS, IEN, and/or video transmissions. The Consultant will submit the documented C2C communications requirements to the LACO DPW for review. LACO DPW will review, provide comments to ensure that such information complies with LA County standards, and send the document back to the Consultant for their final review. Upon the Consultant's update of the document, LACO DPW will be responsible for ordering/procuring the C2C communications and related equipment.

Based on the C2C communications requirements provided by the Consultant, LACO DPW will then be responsible for determining if a connection greater than a T-1 leased circuit is necessary. If a T-1 line is adequate, LACO DPW staff, in conjunction with the telephone service provider, shall work out this type of detail. LACO DPW staff will also be responsible for all work pertaining to deployment of leased circuits and associated communications equipment in the field as well as at the central locations (Agency LCCS & LACO TMC) including coordination with the telephone service vendor. On a time and materials basis, the Consultant will support LACO DPW staff by answering questions related to deployment/installation of the T-1 leased circuits.

If a T-1 line is not adequate, the Consultant will then work with the LACO DPW to evaluate alternative C2C communication architectures. As necessary, the Consultant will provide direction (answer questions) to the LACO DPW related to the C2C communication alternatives analysis. This work will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 2.1 – C2C Communications Requirements (DRAFT)
- Deliverable 2.2 – C2C Communications Requirements (FINAL)
- Deliverable 2.3 – C2C Communications Support

## 2.2 LEVEL 2B AGENCY ATMS

A Sub-Consultant, Meyer Mohaddes Associates (MMA), will lead the technical work for this task. The Consultant's role will be limited to administrative functions associated with the task such as status reporting, invoicing, etc. The Sub-Consultant will confer directly with the local Agencies and the LACO DPW regarding the architecture drawings, ATMS requirements, and individual Agency procurement process.

This task shall include the development of system architecture diagrams, requirements, and a discussion of the proposed system procurement process for those Agencies that will be procuring a new ATMS. At this time, it is anticipated that the following SGVTF Agencies will receive funding to procure a new ATMS:

- City of Alhambra
- City of Covina
- City of Glendora
- City of Irwindale
- City of Rosemead
- City of West Covina

The Sub-Consultant will schedule "kick-off" meetings with each of the six (6) SGVTF Agencies procuring an ATMS. So as to ensure appropriate impartiality, LACO DPW will conduct the kick-off meeting, with the Sub-Consultant providing technical and documentation support. During the kick-off meeting, LACO DPW, the Sub-Consultant, and the SGVTF Agency shall discuss/review the expected ATMS requirements and LCCS layout. In addition, LACO DPW will ask if the SGVTF Agency has already selected an ATMS for installation, and what the intended procurement process is for the ATMS (e.g., sole source requisition, Request for Proposal, etc.). In addition at this meeting, the Sub-Consultant will review the planned LCCS location and discuss the work that will be required (if any) at each location.

For each of these Agencies, the Sub-Consultant will develop a system architecture diagram and schematic LCCS layout. The system architecture diagram will show the different system components (e.g., traffic control, camera control, workstations, etc.) and the integration with the IEN (e.g., Site Server, Workstation, CDI, etc.). LACO DPW will supply the details required (e.g., hardware equipment list, COTS software list, communications equipment, network configurations, etc.) to connect the IEN components located at an Agency LCCS to the SGV IEN Corridor Server located at the LACO TMC. The Sub-Consultant shall develop the system block diagram showing the connection of computer and communications equipment. These architecture drawings are meant to provide a high-level view of the network to provide the Agencies with an understanding of the equipment required for a typical ATMS. The specific network diagram will vary for each Agency based on the number of traffic signals, specific system requirements as indicated in the Conceptual Design report, number/type of computer server(s) required, type(s) of communications media (both existing and proposed) for the Agency, etc.

The schematic LCCS layout will show the general layout of equipment within the Agencies' LCCS. This will show work areas, placement of computer equipment/workstations/monitors, location of network links/connections, electrical/power locations, and any video display equipment that may be desired.

Should the SGVTF Agency require an RFP to be prepared re: its ATMS procurement process, all associated tasks shall be completed outside of this Agreement.

The following statements discuss the expected work elements for each Level 2B Agency for which ITS Projects were identified within the SGVTF Phase 1 Conceptual Design, and therefore, for whom Phase 2 services identified within this task will be provided.

City of Alhambra

Based on the input received from the City of Alhambra, the LCCS will be housed in the City's Traffic Engineer office at the City Hall. A 96" x 25" table in the City Traffic Engineer office is designated as the Operator Control area.

City of Covina

Based on the input received from the City of Covina, the LCCS will be housed in the City Hall. There is a small cubicle available within the Public Works office area, which will be used as the Operator Control area.

City of Glendora

Based on the input received from the City of Glendora, the LCCS will be housed in the City Hall; however, the final location has not been determined yet. As part of this task, the Consultant will coordinate the final location of the LCCS with the Traffic Engineer.

City of Irwindale

Based on the input received from the City of Irwindale, the LCCS will be housed in the City Hall; however, the final location has not been determined yet. The City of Irwindale is also interested in procuring a wall-mounted video display for the City Hall location. The Consultant will coordinate the final location of the LCCS within the City Hall and all other activities with the City's Traffic Engineer.

City of Rosemead

Based on the input received from the City of Rosemead, the LCCS will be housed in the Engineer's office in the City Hall. The Engineer's office has an "L" shape counter table that is 24-inches wide, long side 96-inches long, and shorter side 76-inches long, which will be used as the Operator Control area. As part of this task, the Consultant will finalize the location of the LCCS with the Traffic Engineer.

City of West Covina

Based on the input received from the City of West Covina, the LCCS will be housed in the Engineer's office in the City Hall. The Engineer's office will be used as the Operator Control area. As part of this task, the Consultant will finalize the location of the LCCS with the City Traffic Engineer.

The work associated with attending the kick-off meetings, developing the architecture diagrams, and preparing schematic LCCS layouts will be performed on a fixed price basis.

**Deliverables:**

- Deliverable 2.4 – Level 2B Agency ATMS "Kick-Off" Meetings (6 Total)
- Deliverable 2.5 – System Architecture Diagram per Level 2B Agency (6 Total)
- Deliverable 2.6 – Schematic LCCS Layout per Level 2B Agency (6 Total)

## 2.3 LA COUNTY TMC

Within this task, the Consultant will develop separate system network diagrams and equipment lists for each of the following three (3) systems located within the LACO TMC – IEN, KITS, and Barco/Electrosonics Video Wall. Upon task start-up, the LACO DPW will be responsible for providing the Consultant with available information/details re: these systems:

- System architecture details
- Equipment lists/inventories (hardware & communications)
- Existing system network diagrams/configurations
- Details regarding planned system components and/or expansion

After reviewing these materials, the Consultant will conduct a brief meeting with the LACO DPW and LACO DPW ITD to review the existing systems, the equipment (and its functionality), interconnects, and any expansion plans (for future equipment needs). At this meeting, the LACO DPW will provide the Consultant with access to the locations where the existing systems are housed at the LACO TMC as well as describe the planned locations for additional system components. As necessary, the Consultant will perform a brief follow-up with the individual system supplier to resolve any technical questions or discuss/review pertinent details.

For each of these systems, the Consultant will develop a system network diagram (in Visio) that shows the following:

- Different system components (e.g., servers, workstations, etc.)
- System connections (e.g., computers, communications equipment, network links, etc.)
- General layout/placement of equipment within the LACO TMC (e.g., computers, workstations, monitors, etc.)
- Connections to other LACO TMC systems (e.g., KITS CDI, video wall server/display equipment, etc.)

In addition to the diagrams, the Consultant will provide the LACO DPW with a list of communications and computer hardware equipment that both identifies existing system components as well as planned additions to the LACO TMC systems. The Consultant will coordinate this effort with the LACO DPW's ITD staff to determine if any additional equipment (such as racks) needs to be purchased to accommodate the additional equipment. The LACO DPW will purchase and install the additional equipment and the racks if required.

The work associated with developing the system network diagrams and equipment lists will be performed on a fixed price basis. Please note that the Consultant will not develop any text describing the system network diagrams or equipment lists. The work associated with further revisions to the diagrams (per LACO DPW's direction) and coordination efforts with LACO

DPW ITD staff will be performed on a time and material basis per Task 1 – Project Management.

**Deliverables:**

- Deliverable 2.7 – IEN System Network Diagram & Equipment List
- Deliverable 2.8 – KITS System Network Diagram & Equipment List
- Deliverable 2.9 – Video Wall System Network Diagram & Equipment List

## 2.4 LEVEL 1 & 2A AGENCY LCCS DESIGN

The extent of construction and associated level of design effort required for Level 1 and 2A Agencies within this task, are determined largely by the following assumptions:

- The system(s) at each Agency LCCS will be constructed/installed in a room/area previously allocated by the specific Agency representative.
- The Agency LCCS' designated room/defined area shall have adequate room to house the required systems, hardware equipment, communications, network equipments, etc.
- Detailed designs for the modification of building space including, but not limited to, HVAC systems, electrical systems, local area networks (LANs), and reconfiguring walls, windows and doors will not be required. If such modifications are necessary, the Consultant will assist the local Agency in defining the modifications.
- In case of any necessary modifications, the Consultant shall provide a sketch diagram to the construction contractor for the requested modification. The detailed design and/or construction of building modifications are the responsibility of the local SGVTF Agency.
- It is assumed that the racks and consoles will be installed as free-standing items. If any Agency has any requirements that require securing this furniture to the floor or wall, that work will be done by others.

Exhibit 2.1 presents a list of all Level 1 and 2A Agencies for which ITS Projects were identified within the SGVTF Phase 1 Conceptual Design, and therefore, for whom Phase 2 services identified within this task will be provided. The Consultant will meet with each of these Level 1 and 2A Agencies to discuss their LCCS requirements, obtain any previously developed facility layouts/diagrams, and to conduct a site visit/review of each Agency's designated room/defined area proposed to serve as the LCCS.

**Exhibit 2.1 – SGVTF Level 1 and 2A Agencies**

| Level 1 Agencies | Level 2A Agencies |
|---|---|
| South Pasadena | Azusa |
| Temple City | Baldwin Park |
| | Duarte |
| | El Monte |
| | Monrovia |
| | Monterey Park |
| | San Gabriel |
| | San Marino |

As part of this task, the Consultant will provide a typical LCCS layout diagram, equipment list, floor plans, and rack layout diagram for Level 1 and 2A Agencies. In addition, the Consultant shall provide specifications and cost estimates for IEN components and non-ATMS items. In addition, the Consultant will provide procurement support during this task on an as-needed basis.

The Consultant will also develop a typical LCCS network/interconnect diagram per Agency. This diagram will include a typical LCCS system layout for integration purposes. For both Level 1 and 2A Agencies, this will include links required to connect the LCCS' IEN Workstation(s) to the SGV IEN Corridor Server (located at the LACO TMC). For Level 2A Agencies, this will also include links required to connect the LCCS' ATMS Workstation(s) to the LA County TCS (KITS) Server (located at the LACO TMC).

The work associated with providing procurement support will be performed on a time and materials basis. All other work will be performed on a fixed price basis.

**Deliverables:**

- Deliverable 2.10 – LCCS Layout, Diagrams, Equipment List, & Cost per Level 1 or 2A Agency (DRAFT) (10 Total)
- Deliverable 2.11 – LCCS Layout, Diagrams Equipment List & Cost per Level 1 or 2A Agency (FINAL) (10 Total)
- Deliverable 2.12 – Level 1 or 2A Agency LCCS Meetings & Meeting Minutes
- Deliverable 2.13 – Level 1 or 2A Agency LCCS Procurement Support (as needed)

## 2.5 FIELD COMPONENTS

In this task, the Consultant shall prepare plans, specifications, and construction cost estimates (PS&E) for the construction of the field elements identified in the SGVTF Phase 1 Conceptual Design. The PS&E will comply with the LACO DPW's standards. Cost estimates will use a component per-unit cost basis, cost per plan sheet, and will provide jurisdictional Agency breakdowns. This task shall include design/PS&E activities associated with CCTV cameras/field equipment, wireless communications, and other "landline" communications networks. All activities associated with traffic signal controller and/or cabinet upgrades are the responsibility of the local SGVTF Agency and/or the LACO DPW.

### 2.5.1 CCTV Cameras Field Equipment

A Sub-Consultant, LIN Consulting, will be responsible for developing plans, specifications, and estimates (PS&E) for the installation of CCTV equipment and system. At this time, the following eight (8) CCTV locations have been identified for installation within the SGVTF Phase 1 Conceptual Design:

- CCTV Location (TBD)
- Covina
    - Arrow @ Azusa
- El Monte
    - Santa Anita @ Ramona
- Monrovia
    - Huntington @ I-210

- Monterey Park
    - Garvey @ Atlantic
- San Gabriel
    - Valley @ San Gabriel
    - Las Tunas @ San Gabriel
- South Pasadena
    - Huntington @ Garfield

The following is a list of assumptions for the CCTV installations:

- Eight (8) pan/tilt/zoom (PTZ) CCTV cameras will be installed at the locations specified above and approved by both the LACO DPW and Cities.
- The Sub-Consultant will conduct field site visits to review, evaluate, and identify the most appropriate quadrant(s) for siting the CCTV camera at each potential intersection.
- LACO DPW's bucket truck survey will be conducted for up to two (2) approaches which have been preliminary determined to be the best locations.
- CCTV cameras will be mounted on the shaft of an existing traffic signal pole.
- If a CCTV camera is located at an LA County-owned intersection, the CCTV camera(s) will need to have a separate conduit for power and communications link, a separate cabinet to house field equipment, and a separate breaker.
- If a CCTV camera is located at a SGVTF Agency-owned intersection, the CCTV camera(s) communications equipment will be installed within the traffic signal equipment cabinet, providing there is space in the cabinet and conduit.
- CCTV camera installation information can be shown on a traffic signal plan.
- Both the Agency and LACO DPW will approve the final location of the CCTV cameras.
- A single PS&E package will be developed covering the installation of the eight (8) CCTV camera locations. Ten (10) plans will be developed as follows:
    - Title Sheet (1 sheet)
    - CCTV Installation Plans (8 sheets, assume 1 site per sheet)
    - Central Location details including interconnect diagrams and equipment installation (1 sheet)
- The *CCTV Installation Plan* will show site-specific camera installation information as follows:
    - Centerline, curb, and right-of-way information
    - Pole location on which the camera is to be mounted
    - Traffic signal cabinet and/or CCTV cabinet location(s)
    - Service cabinet with circuit breaker information
    - Existing or new conduit and pull boxes between them in which the camera wiring is to be installed (relating to the CCTV wiring installation)
    - CCTV Camera Mounting Detail
    - Schematic for CCTV and Communications Cabinet Equipment Detail
    - Communications Block Diagram will be shown on the CCTV Installation Plans
    - Utility information in the vicinity of the construction
- LACO DPW will provide all necessary utility information. The Sub-Consultant will only be responsible for the drafting.

- All drawings will be in MicroStation format.
- The Sub-Consultant shall meet with the LACO DPW on an as-needed basis to discuss design issues.

The Sub-Consultant will use LACO DPW standard specifications. These specifications will be modified as necessary and submitted to the LACO DPW for their review.

The design shall be performed in the following stages:

**Stage 1** Working with LACO DPW personnel, the Sub-Consultant will conduct a review of the proposed CCTV locations. For each proposed location, LACO DPW personnel, equipped with a LACO DPW bucket truck, will take digital photographs or video from the proposed CCTV mounting height to verify the field of view that the camera can provide. Based on this field review, the final CCTV camera locations will be determined.

**Stage 2** Draft submittal of CCTV camera installation plans, other special drawings, and the title sheet for the project based on the approved Stage 1 locations. The Sub-Consultant will meet with the LACO DPW and Agency staff to review the information.

**Stage 3** Submit final plans and engineer's cost estimate, incorporating all LACO DPW and City-requested revisions to the previously submitted draft construction plans and supporting documents (as required).

**Stage 4** Submit mylars of final plans to be signed by the LACO DPW.

The work required for the Stage 1 activities will be performed on a fixed price basis. The work for the Stage 2, 3, and 4 design submittals will be performed on a unit price per sheet basis for the plans.

**Deliverables:**

- Deliverable 2.14 – CCTV Photos & Field Survey Forms (Stage 1)
- Deliverable 2.15 – CCTV Plans & Specifications (DRAFT – Stage 2)
- Deliverable 2.16 – CCTV Plans, Specifications, & Cost Estimate (FINAL – Stage 3)
- Deliverable 2.17 – Mylars of Final Plans (FINAL – Stage 4)

### 2.5.2 Communications Design

The primary objective of this task is to identify and design the focused improvements necessary for two (2) SGVTF Level 2B Agencies (Alhambra and West Covina) that already have some existing F2C communications infrastructure in-place to support the ITS Projects identified in the SGVTF Phase 1 Conceptual Design. Focused improvements will include closing strategic communications system "gaps" and determining the availability, functionality, and suitability for re-use of the existing communications infrastructure within the SGVTF Phase 2.

The Consultant will provide design activities as follows:

- Field investigation of identified existing communications infrastructure for determination of availability and suitability for re-use as communications links to

serve both the SGVTF Agency's traffic signal control system and proposed CCTV cameras (as necessary).

- Preparation of a preliminary design report that identifies both the communications "gaps" that should be closed to fully support their TCS needs as well as the CCTV locations that can be supported by their existing F2C communications infrastructure (as necessary).

For the field investigation, the primary objective is to identify which existing F2C communications infrastructure can support communications for each SGVTF Agency's TCS and CCTV locations. The Consultant will review existing communication configurations/channel assignments, examine the level of availability and/or functionality capable of being provided, and determine the suitability for re-use of the existing infrastructure within the SGVTF Phase 2 communications design. In addition, the Consultant will discuss and investigate the use of the existing communications infrastructure to support video image detection systems (VIDs) and transfer CCTV video images. Exhibit 2.2 presents the SGVTF Agencies that have existing communications infrastructure, its location, and media type.

**Exhibit 2.2 – Existing Communications Infrastructure per SGVTF Agency**

| Agency | Location of the Existing Communications | Type of Media |
|---|---|---|
| Alhambra | Fremont Avenue<br>Main Street<br>Mission Road | Copper/Twisted Pair |
| West Covina | Azusa Avenue<br>Barranca Street<br>Cameron Avenue<br>Citrus Street<br>Glendora Avenue<br>Lakes Drive<br>Sunset Avenue<br>Valinda Avenue<br>Vincent Avenue<br>West Covina Parkway<br>Workman Avenue | Copper/Twisted Pair |

The Consultant will first meet with Agency staff to review any available as-built drawings and discuss the exact locations/end-points of the twisted pair (TWP) locations including review of the number of TWP pairs, and their expected system condition. The Consultant will rely on each SGVTF Agency to determine where issues (e.g., low strand count, non-operational TWP, etc.) may exist within the Agency-owned TWP for use by the TCS. Once the exact locations have been identified, the Consultant shall complete a limited field survey to confirm the location and number of TWP strands (both in-use and spares) that are able to be used/re-used for communications. It is envisioned that the field work associated with the TWP to support the SGVTF Agency's TCS needs will be "spot-checks" only, not a complete inventory for the entire City. As necessary, a second meeting will be conducted with Agency staff to review the findings/results. It is envisioned that this process will determine the following:

- Exact locations where either new or additional communications media should be deployed to complete a communications system "gap"

- Exact locations where either new or additional communications equipment should be deployed to "tie into" the C2C Communications Design (Tasks 2.1)

As part of the TWP review, the Consultant will also discuss the use of existing video image detection system (VIDs) locations as well as future planned CCTV camera locations within each City. As part of the investigation and field review, the Consultant will also include within the overall analysis the ability to bring back video images from the VIDs detector stations and a "typical" CCTV camera within the TWP analysis.

This task will determine if the existing TWP copper signal interconnect infrastructure is suitable for supplying the communication linkages between the existing VIDs locations and respective Agency LCCS. Similarly, this task will determine if the existing TWP copper signal interconnect infrastructure is suitable for supplying the communication linkages between a typical CCTV camera and respective Agency LCCS. To provide the support for these VIDs locations and a typical CCTV camera, the field investigations will be limited to determining the number of unused, spare conductors in the TWP cable that may be utilized for the VIDs and/or CCTV communications links. The Consultant will develop a map per SGVTF Agency depicting the existing TWP deployment including routing, terminations, number of pairs used, number of good spares, and field master locations.

For the Preliminary Communications Design Report, the primary objective is to develop a design report detailing the recommended design for the communications "gap" closures to support the TCS deployment and CCTV placement. Based on the results of the field investigations, the Consultant will have identified any communication deficiencies in the existing TWP network. The Consultant will then provide an analysis and make recommendations to determine the necessary improvements. All findings, maps, and recommendations will be collected into a Preliminary Communications Design Report. The recommendations will include the following:

- Alternative solutions for improving, replacing or design of new communications infrastructure (including photographs where appropriate)
- Preliminary construction costs of the recommended improvements (as necessary)

Please note that the Consultant will not be responsible for collecting or verifying any utility information. All utility information will be collected and provided by the LACO DPW. The LACO DPW will do all follow-up utility investigation and coordination.

The Preliminary Communications Design Report for each SGVTF Agency will be prepared in draft form and submitted to the LACO DPW and respective City for review and comment. Following receipt of comments, necessary revisions to the Preliminary Communications Design Report will be completed and the final document submitted.

This task will be performed on a fixed price basis per SGVTF Agency.

**Deliverables:**

- Deliverable 2.18 – Preliminary Communications Design Report (DRAFT – Alhambra)
- Deliverable 2.19 – Preliminary Communications Design Report (DRAFT – West Covina)
- Deliverable 2.20 – Preliminary Communications Design Report (FINAL – Alhambra)
- Deliverable 2.21 – Preliminary Communications Design Report (FINAL – West Covina)

### 2.5.3 Communications PS&E

In the event that a City decides to implement some or all of the Preliminary Communications Design Report recommendations, the Consultant will prepare a communications design and/or Plans, Specifications, and Estimate (PS&E) documents and submit to LACO DPW and the respective City for review and comment. As with the Preliminary Communications Design Report, the Consultant will not be responsible for collecting or verifying any utility information. All utility information will be collected and provided by LACO DPW. The LACO DPW will be responsible for all utility follow-up and coordination. The Consultant will obtain curb, sidewalk, right-of-way (ROW), and utility details from the individual Cities in an electronic format. If electronic drawings are not available, hard copies of the drawings will be provided. It is assumed that each PS&E package will be developed as follows:

- Title Sheet (1 sheet)
- Plan Sheets showing the entire project area (5 sheets prepared at 100 scale)
- Traffic Controller Cabinet Detail (1 sheet)
- Central Location details including interconnect diagrams and equipment installation (1 sheet)

Typical construction details will be shown on separate drawings (detail sheets), and not repeated on every plan. All drawings will be in MicroStation format. The Consultant will meet with LACO DPW on an as-needed basis to discuss design issues.

The work for the communications design will be performed on a task order basis per PS&E package developed. Meetings to discuss design issues will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 2.22 – Level 2B Agency Communications PS&E (DRAFT)(2 Total)
- Deliverable 2.23 – Level 2B Agency Communications PS&E (FINAL)(2 Total)

# 3. ATMS SUPPORT

If any of the six (6) Level 2B Agencies (Alhambra, Covina, Glendora, Irwindale, Rosemead, and West Covina) have not selected the Consultant's *TransSuite*® ATMS system, the Consultant will provide oversight of the implementation of the ATMSs installed as part of the SGVTF Project. For these SGVTF Agencies, the Consultant will coordinate all activities with the ATMS Vendor in order to provide a complete and successful ATMS implementation, integration, testing, training, and documentation effort. For any Agency where the Consultant, under a separate contract, is serving as the ATMS Vendor, the oversight activities shall not be a part of this Agreement. All coordination and oversight activities will be performed on a time and materials basis.

For those SGVTF Agencies which have not selected the Consultant's *TransSuite*® ATMS system and where oversight is desired by an Agency, the Consultant will supervise the installation of the ATMS system and its integration with the field equipment and communications infrastructure. This will include supervision of installing the central hardware and connections to the field devices. The Consultant will coordinate all activities with the ATMS Vendor. The Vendor supplying the system will do the installation of the ATMS system.

The LACO DPW will be responsible for working with the Vendors in installing the leased circuits, installing the end equipment, and testing the leased lines. The Consultant will provide support during these activities on an as-needed basis.

## 3.1 SYSTEM ACCEPTANCE TESTING

For those Level 2B Agencies which have not selected the Consultant's *TransSuite*® ATMS system, the Consultant will review the System Acceptance Tests (SATs) prepared by the ATMS Vendors. For any SGVTF Agency where the Consultant, under a separate contract, is serving as the ATMS Vendor, the oversight activities shall not be a part of this Agreement. The SATs will first be used for pre-installation testing by the ATMS Vendor. Formal System Acceptance Testing (SAT) will begin after the system has been fully installed. The Consultant shall supervise the SAT according to SAT procedures and will verify system component installation including major data interfaces and communications links. Test results will be documented and any issues that arise during testing will be resolved through recognized conventions and through the use of a formal system problem reporting procedure. As needed, the Consultant shall ensure that each discrepancy in the test is addressed and resolved using procedures agreed with the involved Agencies and formally documented as part of the SATs.

**Deliverables:**

- Deliverable 3.1 – System Acceptance Tests (SATs) Review (Up to 6 SATs)

## 3.2 TRAINING

For those Level 2B Agencies that have not selected the Consultant's *TransSuite*® ATMS system, the Consultant will review the ATMS training material submitted by the ATMS Vendors and will provide comments as needed. For any SGVTF Agency where the Consultant, under a separate contract, is serving as the ATMS Vendor, the oversight activities shall not be a part of this Agreement.

**Deliverables:**

- Deliverable 3.2 – ATMS Training Materials Review (Up to 6 Sets of Training Materials)

## 3.3 DOCUMENTATION

For those Level 2B Agencies that have not selected the Consultant's *TransSuite*® ATMS system, the Consultant shall review the system documentation submitted by the ATMS Vendors and provide comments as needed. For any SGVTF Agency where the Consultant, under a separate contract, is serving as the ATMS Vendor, the oversight activities shall not be a part of this Agreement.

**Deliverables:**

- Deliverable 3.3 – ATMS System Documentation Review (Up to 6 Sets of System Documentation)

## 3.4 LACO DPW TCS WORKSTATIONS

For Level 2A Agencies that will be receiving a LACO DPW TCS Workstation, the Consultant shall provide oversight of the workstation installation and integration with the LACO DPW TCS. The effort shall also include the oversight of the work to integrate the local traffic signal controllers with the LACO DPW TCS.

**Deliverables:**

- Deliverable 3.4 – LACO DPW TCS Workstation Installation/Integration Oversight per Level 2A Agency (8 Total)

## 3.5 ATMS PROCUREMENT

Based on efforts/results from Task 2.2, should one or more of the SGVTF Level 2B Agencies decide to move forward with a formal ATMS RFP procurement process, any activities associated with this Task shall not be a part of this Agreement.

## 3.6 LCCS SUPPORT

At the LACO DPW's direction, the Consultant will work with one or more of the SGVTF Level 2B Agencies to define any building improvements that need to be made to house all of the systems, equipment, communications, etc. required within the LCCS. These improvements include revisions to walls, doorways, windows, and building systems (HVAC, electrical, LANs, etc.). The Consultant's role in this work is limited to assisting the Level 2B Agency with the definition of building improvements and the detailed design of such improvements are not included in this scope. The Consultant will also provide support to the Level 2B Agencies in procuring and installing the LCCS equipment (consoles, video wall, etc.) for the SGVTF Project.

All tasks identified in Section 3 will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 3.5 – LCCS Support per Level 2B Agency (6 Total)

# 4. DEPLOYMENT OF IEN & ATMS COMPONENTS AT LOCAL AGENCIES

## 4.1 LEVEL 2B AGENCY DEPLOYMENT

The deployment of IEN Site Components [Site Server, Workstation, and Command/Data Interface (CDI)] at local Agencies hosting an ATMS (Level 2B Agency) includes the tasks detailed in Exhibit 4.1. From past experience, the organization listed in the "Responsibility" column is the most likely candidate to perform the task. In some instances however [Optional Tasks (*)], the local Agency needs to make a decision re: who they want to perform the task (ATMS Vendor, Consultant, or IEN Consultant).

**Exhibit 4.1 – Level 2B Agencies – IEN & ATMS Set-Up Tasks**

| Task No. | Description | Responsibility (Lead Organization) |
|---|---|---|
| 1. | Deployment of IEN Site Server software and hardware at the Host Agency LCCS (*) | ATMS Vendor |
| 2. | Deployment of IEN Workstation software and hardware at the Host Agency LCCS (*) | ATMS Vendor |
| 3. | Population of IEN graphics and database | LACO DPW (Graphics)<br>IEN Consultant (Database) |
| 4. | Physical connection between the IEN Site Server at the Host Agency LCCS and SGV IEN Corridor Server at the LACO TMC | LACO DPW |
| 5. | Deployment and testing of leased lines and communications equipment at the Host Agency LCCS and LACO TMC | LACO DPW |
| 6. | Integration and testing of the data link between the ATMS Server/CDI and IEN Site Server at the Host Agency LCCS (*) | ATMS Vendor |
| 7. | Integration and testing of the data link between the IEN Workstation at the Host Agency LCCS and:<br>• IEN Site Server at the Host Agency LCCS (*)<br>• SGV IEN Corridor Server located at the LACO TMC (*) | ATMS Vendor |
| 8. | Integration and testing of the data link between the IEN Site Server located at the Host Agency LCCS and the SGV IEN Corridor Server located at the LACO TMC (*) | ATMS Vendor |
| 9. | Verify end-to-end connectivity (IEN) | LACO DPW |
| 10. | Verify end-to-end connectivity (ATMS) (*) | ATMS Vendor |
| 11. | Bring the intersections on-line (IEN) | LACO DPW |
| 12. | Bring the intersections on-line (ATMS) (*) | Host Agency |

It is assumed that all other ATMS efforts required by a Level 2B Agency (connecting traffic signals to the central TCS Server, developing intersection graphics, etc.) will be the responsibility of the ATMS Vendor under separate contract. The ATMS Vendor will be responsible for developing and/or installing the CDI between their TCS and the IEN. Note that some Agencies may select the Consultant's *TransSuite*® ATMS system. In this instance, the

Consultant will be responsible for completing these tasks under a separate Agreement with the individual Agency. The LACO DPW will provide CDI documentation to the ATMS Vendor. The LACO DPW will make the IEN Site Server and IEN Workstation software available with appropriate documentation for installing and configuring the software. In addition, as a required task under the IEN Master Agreement, (PW Contract 001571), the Consultant will be available for answering questions. It is further assumed that the LACO DPW will provide the IEN acceptance test procedures (Site Server, Workstation, and CDI) to perform the testing in Task #'s 6, 7, and 8 (as appropriate).

## 4.2 LEVEL 2A AGENCY DEPLOYMENT

The deployment of IEN Site Components (Site Server and Workstation) at local Agencies with a remote ATMS Workstation connected to the LACO TCS (Level 2A Agencies) includes the tasks detailed in Exhibit 4.2. From past experience, the organization listed in the "Responsibility" column is the most likely candidate to perform the task. In some instances however [Optional Tasks (*)], the local Agency needs to make a decision re: who they want to perform the task (LACO TCS Vendor, Consultant, or IEN Consultant). For those Tasks indicated as the responsibility of the IEN Consultant, the associated tasks will be completed by the Consultant via the IEN Master Agreement, (PW Contract 001571).

**Exhibit 4.2 – Level 2A Agencies – IEN & ATMS Set-Up Tasks**

| Task No. | Description | Responsibility (Lead Organization) |
|---|---|---|
| 1. | Deployment of IEN Site Server software and hardware at the Host Agency LCCS | Consultant |
| 2. | Deployment of IEN Workstation software and hardware at the Host Agency LCCS | Consultant |
| 3. | Population of IEN graphics and database | LACO DPW (Graphics)<br>IEN Consultant (Database) |
| 4. | Connect Host Agency traffic signals to the central LACO TCS Server at the LACO TMC (*) | LACO DPW |
| 5. | Deployment of ATMS Workstation software and hardware at the Host Agency LCCS (*) | Consultant |
| 6. | Population of LACO TCS graphics and database (*) | LACO DPW |
| 7. | Physical connection between the IEN Site Server at the Host Agency LCCS and SGV IEN Corridor Server at the LACO TMC | LACO DPW |
| 8. | Physical connection between the ATMS Workstation at the Host Agency LCCS and central LACO TCS Server at the LACO TMC | LACO DPW |
| 9. | Deployment and testing of leased lines and communications equipment at the Host Agency LCCS and LACO TMC | LACO DPW |
| 10. | Integration and testing of the data link between the LACO TCS Server/CDI located at the LACO TMC and the ATMS Workstation at the Host Agency LCCS | Consultant |

| Task No. | Description | Responsibility (Lead Organization) |
|---|---|---|
| 11. | Integration and testing of the data link between the IEN Workstation at the Host Agency LCCS and:<br>• IEN Site Server at the Host Agency LCCS<br>• SGV IEN Corridor Server located at the LACO TMC | Consultant |
| 12. | Integration and testing of the data link between the IEN Site Server located at the Host Agency LCCS and the SGV IEN Corridor Server located at the LACO TMC | Consultant |
| 13. | Integration and testing of the data link between the central LACO TCS Server/CDI and the SGV IEN Corridor Server (both located at the LACO TMC) (*) | IEN Consultant |
| 14. | Verify end-to-end connectivity (IEN & ATMS) | LACO DPW |
| 15. | Bring the intersections on-line (IEN & ATMS) | LACO DPW |

The LACO DPW will make the IEN Site Server and IEN Workstation software available with appropriate documentation for installing and configuring the software. In addition, as a required task under the IEN Master Agreement, (PW Contract 001571), the Consultant will be available for answering questions. It is further assumed that the LACO DPW will provide the IEN acceptance test procedures (Site Server, Workstation, and CDI) to perform the testing in Task #'s 11, 12, and 13. Similarly, the LACO DPW will make the ATMS Workstation software available with appropriate documentation for installing and configuring the LACO TCS software and also will make their LACO TCS Vendor available for answering questions. It is further assumed that the LACO DPW will provide the LACO TCS acceptance test procedures to perform the testing in Task 10.

## 4.3 LEVEL 1 AGENCY DEPLOYMENT

The deployment of IEN Site Components (Site Server and Workstation) at Level 1 Agencies (aka Agencies whose signals are controlled by the LACO TCS but do not have an ATMS Workstation) includes the tasks detailed in Exhibit 4.3. From past experience, the organization listed in the "Responsibility" column is the most likely candidate to perform the task. In some instances however [Optional Tasks (*)], the local Agency needs to make a decision re: who they want to perform the task (LACO TCS Vendor, Consultant, or IEN Consultant). For those Tasks indicated as the responsibility of the IEN Consultant, the associated tasks will be completed by the Consultant via the IEN Master Agreement, (PW Contract 001571).

**Exhibit 4.3 – Level 1 Agencies – IEN & ATMS Set-Up Tasks**

| Task No. | Description | Responsibility (Lead Organization) |
|---|---|---|
| 1. | Deployment of IEN Site Server software and hardware at the Host Agency LCCS | Consultant |
| 2. | Deployment of IEN Workstation software and hardware at the Host Agency LCCS | Consultant |
| 3. | Population of IEN graphics and database | LACO DPW (Graphics)<br>IEN Consultant (Database) |
| 4. | Connect Host Agency traffic signals to the central LACO TCS Server at the LACO TMC (*) | LACO DPW |
| 5. | Population of LACO TCS graphics and database (*) | LACO DPW |
| 6. | Physical connection between the IEN Site Server at the Host Agency LCCS and SGV IEN Corridor Server at the LACO TMC | LACO DPW |
| 7. | Deployment and testing of leased lines and communications equipment at the Host Agency LCCS and LACO TMC | LACO DPW |
| 8. | Integration and testing of the data link between the IEN Workstation at the Host Agency LCCS and:<br>• IEN Site Server at the Host Agency LCCS<br>• SGV IEN Corridor Server located at the LACO TMC | Consultant |
| 9. | Integration and testing of the data link between the IEN Site Server located at the Host Agency LCCS and the SGV IEN Corridor Server located at the LACO TMC | IEN Consultant |
| 10. | Integration and testing of the data link between the central LACO TCS Server/CDI and the SGV IEN Corridor Server (both located at the LACO TMC) (*) | IEN Consultant |
| 11. | Verify end-to-end connectivity (IEN & ATMS) | LACO DPW |
| 12. | Bring the intersections on-line (IEN & ATMS) | LACO DPW |

The LACO DPW will make the IEN Site Server and IEN Workstation software available with appropriate documentation for installing and configuring the software. In addition, as a required task for the IEN Master Agreement, (PW Contract 001571), the Consultant will be available to answer questions. It is further assumed that the LACO DPW will provide the IEN acceptance test procedures (Site Server, Workstation, and CDI) to perform the testing in Task #'s 8, 9, and 10. Similarly, the LACO DPW will make available the appropriate documentation for installing and configuring the LACO TCS software and also will make their LACO TCS Vendor available for answering questions.

## 4.4 LACO TMC DEPLOYMENT

At the LACO TMC and as directed by the LACO DPW, the Consultant will work with the LACO DPW to deploy, integrate, and test additional LACO TCS Servers, LACO TCS Workstations, and all associated data links and/or network connections.

All tasks identified in Section 4 will be performed on a time and materials basis. Any Optional Tasks (*) performed by the Consultant will be funded with contingency funds for this project.

**Deliverables:**

- Deliverable 4.1 – Level 2A Agency Deployed & Tested IEN Site Components (Site Server, Workstation, & CDI) & ATMS Site Components (LACO TCS Server & Workstations)
- Deliverable 4.2 – Level 1 Agency Deployed & Tested IEN Site Components (Site Server, Workstation, & CDI)
- Deliverable 4.3 – LACO TMC Deployed & Tested ATMS Site Components (LACO TCS Server & Workstations)

## 5. OVERSIGHT OF VIDEO DISTRIBUTION SOFTWARE

The following Agencies are expected to have CCTV camera equipment and Video Control Software (VCS) installed as part of the SGVTF Project.

- CCTV Location & Potential VCS (TBD)
- Covina (CCTV camera and VCS)
- El Monte (CCTV camera only)
- LACO (VCS only)
- Monrovia (CCTV camera only)
- Monterey Park (CCTV camera only)
- San Gabriel (CCTV cameras only)
- South Pasadena (CCTV camera only)

The Consultant will oversee implementation of the video distribution system to be developed and implemented under a separate contract. The Consultant will assist SGVTF Agencies during the implementation process by answering questions from the system supplier, arranging coordination with related activities, acceptance tests and follow-up and retesting of failures, receiving system documentation, reviewing training plans, and facilities training.

This task will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 5.1 – Oversight of Video Distribution System Installation

## 6. CONSTRUCTION INSPECTION ASSISTANCE

The Consultant shall be available to provide engineering assistance during contract award and construction phase. Such support may include assistance in preparing bid addendums, bid review, inspection assistance for specialty equipment, and assisting in preparing responses to Contractor request for changes or clarification. Site visits to review facilities will be made if necessary.

This task will be performed on a time and materials basis.

**Deliverable:**

- Deliverable 6.1 – Construction Assistance (as needed)

## 7. AS-BUILT PLANS

The Consultant shall develop as-built documents using the Contractors' markups of the construction drawings. The Consultant shall update the master drawings to reflect changes made during construction. Final reproducible and electronic copies of all plans will be provided.

This task will be performed on a time and materials basis

**Deliverables:**

- Deliverable 7.1 – As-Built Plans (in both reproducible & electronic copy)

## 8. START-UP AND ON-GOING SYSTEM SUPPORT

The suppliers of the SGVTF Level 2B Agencies' ATMSs will provide support during the systems' warranty periods. However, there remains a range of operations and management activities that are outside of the warranty activities and fall on the Agency personnel to perform. For many Agencies, the operational phase of the SGVTF Project will involve Agency staff in new activities, involving unfamiliar equipment, and under new inter-Agency procedures and levels of operation.

In order to support the Level 2B Agency staff, the Consultant will provide as-needed system-level support services to the LACO DPW and associated Agencies for a period of one year (1-year) following acceptance and deployment of the systems. Support services will be administered through supervisory and training relationships with designated Agency personnel responsible for system operation and ordinary maintenance tasks. Ordinary system support services include:

- Assist Agency operators and engineers in adapting the system to local traffic environment
- Guide routine maintenance repair and replacement of failed system components
- Prepare appropriate updates and revisions to system records
- Coordinate field hardware maintenance with affiliated hardware Vendors
- Provide guidance on issues related to hardware and software warranties
- Providing quarterly reports detailing system operations, maintenance, and related outcomes

This task will be performed on a time and materials basis.

**Deliverables:**

- Deliverable 8.1 – Quarterly Reports

# APPENDIX A – LIST OF ASSUMPTIONS

| No. | Assumption Description | Category |
|---|---|---|
| 1. | No modifications will be done to the building infrastructure such as but not limited to: any electrical modifications, HVAC, any construction to the existing infrastructure or any other modifications to incorporate the LCCS equipment and system. | LCCS |
| 2. | It is assumed that the racks and consoles will be installed as freestanding items, if any Agency has any requirements that require securing this furniture to the floor or wall; that work will be done by others. | LCCS |
| 3. | The Consultant is not responsible for the purchase and/or installation of any additional equipment, such as the racks that might be necessary for the LCCS. | LCCS |
| 4. | The scope of work for this task does not include creating or altering existing traffic signal plans nor does it include updating conductor schedules. | Field Components |
| 5. | The Consultant will not be responsible for collecting or verifying any utility information. All utility information will be collected and provided by the LACO DPW. The LACO DPW will do all follow-up utility investigation and coordination. | Field Components |
| 6. | The Consultant will only specify the origin of the leased circuits. | C2C |
| 7. | All conduit and cable installation needed for leased line connections to the traffic signal cabinet (as needed), will be designed by others and will not be included in the PS&E. | C2C |
| 8. | One (1) pan/tilt/zoom (PTZ) CCTV camera will be installed at eight (8) locations. | CCTV |
| 9. | | |
| 10. | CCTV cameras will be mounted on the shaft or mast arm of an existing traffic signal pole or an adjacent existing streetlight pole. | CCTV |
| 11. | For Local Agency-owned intersections, CCTV camera control and communications equipment will be installed within the traffic signal equipment cabinet (not for LACO DPW-owned intersections though). | CCTV |
| 12. | No camera information will be shown on traffic signal plans. | CCTV |
| 13. | Site-specific camera installation information will be shown on a sketch of a portion of the intersection. | CCTV |
| 14. | Several typical details will be shown on the same Details sheet at various scales as appropriate for each detail. | CCTV |

Exhibit 2

# SAN GABRIEL VALLEY TRAFFIC FORUM (SGVTF)
# PHASE 2 – DETAILED DESIGN

## TransCore Team T&M Labor Rates

**FINAL**

Prepared for:
**Los Angeles County**
**Department of Public Works**

Prepared by:

TRANSCORE
626 Wilshire Boulevard
Suite 818
Los Angeles, CA 90017

**May 25th, 2007**

### *TransCore Hourly Labor Rates per Staffing Category*

1. Please note that the TransCore staff listed below reflect both "Actual" and "Representative" staff at this time. Both TransCore and LA County fully acknowledge that additional TransCore staff may need to be added to these Labor Categories (as approved by LA County).
2. As of the effective date of the SGVTF Phase 2 SOW, TransCore staff listed herein are pre-approved by LA County to work in the role and at the rates set forth below.
3. Per the Agreement's (PW12716) Section 4.3 – Cost of Living Adjustments (COLA), TransCore reserves the right to request a COLA increase from LA County every year on the anniversary of our Agreement (originally executed in October 2003).

| Labor Category | TransCore Staff (Actual & Representative) | Billing Rate/Hour |
|---|---|---|
| Project Manager | Alek Hovsepian | $138.68 |
| Responsible Officer | Mike Mauritz | $188.06 |
| Chief Engineer | Bob Rausch | $215.38 |
| Senior ITS Engineer | Keith Patton | $188.06 |
| | Walter Crear | |
| ITS Engineer | Ron Mikalson | $160.75 |
| | Rich Shinn | |
| | Anthony Torres | |
| Senior Systems Engineer | Chuck Dankocsik | $149.18 |
| | Jeff Mayo | |
| Systems Engineer | Michael Bayer | $110.31 |
| Senior Engineer | John Turner | $104.01 |
| | Shelby Hansen | |
| Junior Engineer | Steve Dreilling | $87.20 |
| Administrative Assistant | Sharon Turnbo | $75.65 |
| Graphics/CAD Technician | RJ Lamphear | $75.65 |
| | Jerry Lahman | |

### *MMA Hourly Labor Rates per Staffing Category*

1. Please note that the MMA staff listed below reflect both "Actual" and "Representative" staff at this time. Both MMA and LA County fully acknowledge that additional MMA staff may need to be added to these Labor Categories (as approved by LA County).
2. As of the effective date of the SGVTF Phase 2 SOW, MMA staff listed herein are pre-approved by LA County to work in the role and at the rates set forth below.
3. Per the Agreement's (PW12716) Section 4.3 – Cost of Living Adjustments (COLA), MMA reserves the right to request a COLA increase from LA County every year on the anniversary of our Agreement (originally executed in October 2003).

| Labor Category | MMA Staff (Actual & Representative) | Billing Rate/Hour |
|---|---|---|
| Task Lead/Quality Control | Marc Porter | $185.00 |
| Senior Systems Engineer | Ramin Maasoumi | $165.00 |
| | Various (TBD) | |
| Senior Transportation Engineer | Tom Petrosino | $165.00 |
| | Various (TBD) | |
| Engineer | Various (TBD) | $115.00 |
| Graphics/CAD Technician | Various (TBD) | $90.00 |
| Technical Support | Various (TBD) | $75.00 |

***LIN Hourly Labor Rates per Staffing Category***

1. Please note that the LIN staff listed below reflect both "Actual" and "Representative" staff at this time. Both LIN and LA County fully acknowledge that additional LIN staff may need to be added to these Labor Categories (as approved by LA County).
2. As of the effective date of the SGVTF Phase 2 SOW, LIN staff listed herein are pre-approved by LA County to work in the role and at the rates set forth below.
3. Per the Agreement's (PW12716) Section 4.3 – Cost of Living Adjustments (COLA), LIN reserves the right to request a COLA increase from LA County every year on the anniversary of our Agreement (originally executed in October 2003).

| Labor Category | LIN Staff (Actual & Representative) | Billing Rate/Hour |
|---|---|---|
| Principal | Denwun Lin | $165.00 |
| Senior Project Manager | William Sun | $155.00 |
| Senior Engineer | Kay Hsu | $130.00 |
| | George Wang | |
| Project Engineer | Ray Kommidi | $85.00 |
| | Ryan Woo | |
| | Benny Yau | |
| | Joe Donaldson | |
| Assistant Engineer | Hector Gonzalez | $75.00 |
| Technical Support | Nancy Nguyen | $65.00 |
| | Hani Liang | |

## Exhibit 2

## SGVTF PHASE 2 -- LIST OF DELIVERABLES & PAYMENTS

The following table presents TransCore's Cost Proposal for the Phase 2 -- San Gabriel Valley Traffic Signal Forum Advanced Traffic Management Improvement Project for the Los Angeles County Department of Public Works (LA County). This Cost Proposal was developed based on the Statement of Work that was prepared for the project, dated 5/15/07. The items listed in the following table reflect the project deliverables, and will also serve as the basis for submitting invoices. These costs are based on TransCore and LA County coming to mutually agreeable contract terms. It is anticipated that the work/tasks indicated by (**) will be reimbursed on a time and materials (T&M) basis in accordance with the labor rates shown in Attachment 2.1. All other tasks will be performed on a firm fixed price (FFP) basis and billable upon a percent complete basis (where applicable).

### Project Costs & Schedule per Task/Deliverable

| Task/Deliverable | Value (Labor & Directs) | Holdback Amount | Aggregate Invoice Amount* |
|---|---|---|---|
| 1 – Project Management** | $175,000 | $17,500 | $157,500 |
| 1.1 – Meeting Attendance (Up to 6 Meetings) | | | |
| 1.2 – Presentations Materials/Handouts (Up to 2 Presentations) | | | |
| 1.3 – Project Status-Meeting Minutes (Up to 6 Meetings/Reports) | | | |
| 1.4 – Provide Updated Materials to LACO DPW IT Staff to Update the SGVTF Website | | | |
| 1.5 – Monthly Progress Reports | | | |
| 1.6 – Financial Reports, Billings, & Invoices | | | |
| 1.7 – Project Schedule (3 Iterations, 1 Electronic File & 1 Hard Copy per Iteration) | | | |
| 2.1 – C2C Communications Requirements (DRAFT) | $12,600 | $1,260 | $11,340 |
| 2.2 – C2C Communications Requirements (FINAL) | $5,400 | $540 | $4,860 |
| 2.3 – C2C Communication Support** | $50,000 | $5,000 | $45,000 |
| 2.4 – Level 2B Agency ATMS "Kick-Off" Meetings (6 Total) | $18,900 | $1,890 | $17,010 |
| 2.5 – System Architecture Diagram per Level 2B Agency (6 Total) | $40,110 | $4,011 | $36,099 |
| 2.6 – Schematic LCCS Layout per Level 2B Agency (6 Total) | $48,990 | $4,899 | $44,091 |
| 2.7 – IEN System Network Diagram & Equipment List | $6,000 | $600 | $5,400 |
| 2.8 – KITS System Network Diagram & Equipment List | $6,000 | $600 | $5,400 |
| 2.9 – Video Wall System Network Diagram & Equipment List | $6,000 | $600 | $5,400 |
| 2.10 – LCCS Layout, Diagrams, Equipment List, & Cost per Level 1 or 2A Agency (DRAFT) (10 Total) | $49,000 | $4,900 | $44,100 |
| 2.11 – LCCS Layout, Diagrams, Equipment List, & Cost per Level 1 or 2A Agency (FINAL) (10 Total) | $21,000 | $2,100 | $18,900 |
| 2.12 – Level 1 or 2A Agency LCCS Meetings & Meeting Minutes (10 Total) | $24,000 | $2,400 | $21,600 |
| 2.13 – Level 1 or 2A Agency LCCS Procurement Support** | $59,000 | $5,900 | $53,100 |
| 2.14 – CCTV Photos & Field Survey Forms (Stage 1) | $11,480 | $1,148 | $10,332 |
| 2.15 – CCTV Plans & Specifications (DRAFT – Stage 2) | $31,210 | $3,121 | $28,089 |
| 2.16 – CCTV Plans, Specifications, & Cost Estimate (FINAL – Stage 3) | $20,640 | $2,064 | $18,576 |
| 2.17 – Mylars of Final Plans (FINAL – Stage 4) | $11,145 | $1,115 | $10,030 |
| 2.18 – Preliminary Communications Design Report (DRAFT – Alhambra) | $31,500 | $3,150 | $28,350 |
| 2.19 – Preliminary Communications Design Report (DRAFT – West Covina) | $35,000 | $3,500 | $31,500 |
| 2.20 – Preliminary Communications Design Report (FINAL – Alhambra) | $13,500 | $1,350 | $12,150 |
| 2.21 – Preliminary Communications Design Report (FINAL – West Covina) | $15,000 | $1,500 | $13,500 |
| 2.22 – Level 2B Agency Communications PS&E (DRAFT) (2 Total)** | $33,000 | $3,300 | $29,700 |
| 2.23 – Level 2B Agency Communications PS&E (FINAL) (2 Total)** | $17,000 | $1,700 | $15,300 |
| 3 – ATMS Support** | $150,000 | $15,000 | $135,000 |
| 3.1 – System Acceptance Tests (SATs) Review (Up to 6 SATs) | | | |
| 3.2 – ATMS Training Materials Review (Up to 6 Sets of Training Materials) | | | |
| 3.3 – ATMS System Documentation Review (Up to 6 Sets of System Documentation) | | | |
| 3.4 – LACO DPW TCS Workstation Installation/Integration Oversight per Level 2A Agency (8 Total) | | | |
| 3.5 – LCCS Support per Level 2B Agency (6 Total) | | | |
| 4.1 – Level 2A Agency Deployed & Tested IEN Site Components (Site Server, Workstation, & CDI) & ATMS Site Components (LACO TCS Server & Workstations)** | $81,000 | $8,100 | $72,900 |

| Task/Deliverable | Value (Labor & Directs) | Holdback Amount | Aggregate Invoice Amount* |
|---|---|---|---|
| 4.2 – Level 1 Agency Deployed & Tested IEN Site Components (Site Server, Workstation, & CDI)** | $16,000 | $1,600 | $14,400 |
| 4.3 – LACO TMC Deployed & Tested ATMS Site Components (LACO TCS Server & Workstations)** | $28,000 | $2,800 | $25,200 |
| 5 – Oversight of Video Distribution Software** | $70,000 | $7,000 | $63,000 |
| 6 – Construction Inspection Assistance** | $50,000 | $5,000 | $45,000 |
| 7 – As-Built Plans** | $18,000 | $1,800 | $16,200 |
| 8 – Start-Up & On-Going System Support** | $65,000 | $6,500 | $58,500 |
| 9 – Additional Services** | $122,025 | $12,202 | $109,822 |
| **TOTAL*** ** | **$1,341,500** | **$134,150** | **$1,207,349** |

* The "Aggregate Invoice Amount" is the maximum amount payable by LA County for the applicable Task/Deliverable after reduction for the Holdback Amount.

** The dollar amounts in these rows assume payment by LA County of the maximum amount of fees allocated for these tasks/deliverables (as applicable).

*** These totals may be subject to adjustment for any amounts owed to LA County by TransCore, MMA, or LIN Consulting arising under the Agreement.